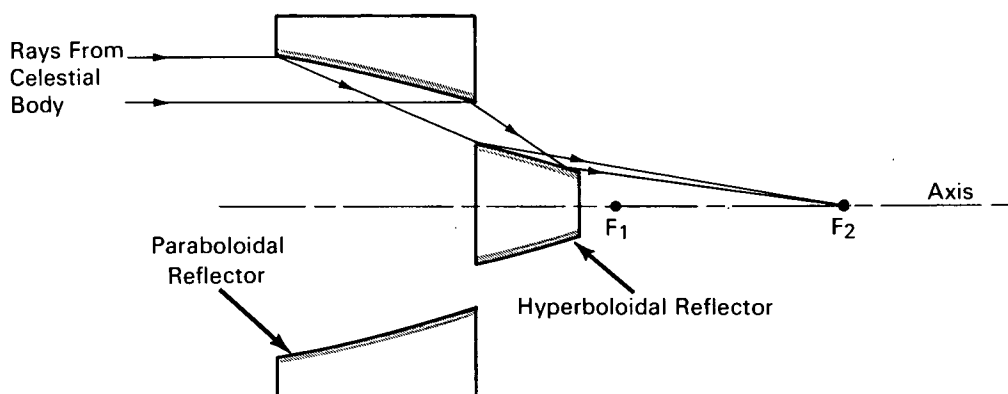


NASA TECH BRIEF



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Glancing Incidence Telescope for Far Ultraviolet and Soft X-Rays



A glancing-incidence telescope has been designed for observation of distant celestial radiant bodies at wavelengths in the spectral region between 3 and 500 Angstroms. Conventional optical systems either do not operate efficiently over portions of this wavelength region, are of excessive physical length, or cannot be matched to a convenient spectrometer.

The telescope is essentially a glancing-incidence Cassegrain reflector system of a concave paraboloid of revolution followed by a convex hyperboloid of revolution. As shown in the diagram, the paraboloidal reflector and the hyperboloidal reflector are mounted to be confocal at F_1 . Rays from a celestial body which are incident on the paraboloid are parallel to the axis of the system and, therefore, tend to converge toward F_1 . These rays are intercepted by the convex hyperboloidal reflector surface, from which they converge to F_2 , the conjugate focus of the hyperboloid. The image at this focus may be cast onto a photographic plate or upon the entrance slit of a glancing-incidence or Bragg crystal spectrometer, for

the purpose of measuring the far ultraviolet or X-ray spectrum of all or part of the celestial body.

Notes:

1. In addition to the applications mentioned above, the device can be used as a fore-optics system for a laboratory extreme ultraviolet spectrometer, or for the collection or "imaging" of thermal neutrons.
2. Inquiries concerning this device may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland 20771
Reference: B67-10508

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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Category 02

